Solicitation Number: SCC060001-A1

# **Statewide Research and Survey Services**

# **Category 3.4.1. Research Types-Statistical (quantitative)**

Solicitation Due Date: September 30, 2005

Submitted to: Strategic Contracting Centers 100 N. 15<sup>th</sup> Ave., Suite 104 Phoenix, Arizona 85007



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# Experience and Expertise—3.4.1. Research Types-Statistical (quantitative)

# **Overview of Experience and Expertise**

LeCroy & Milligan Associates, Inc. (LMA) has the breadth of experience and a service philosophy that is well suited to the variety of services requested in the solicitation. For the past 14 years, LeCroy & Milligan Associates has provided research, evaluation, planning and training services for state, federal and local agencies in a variety of project areas.

The combined personnel of our organization provide a unique balance of individuals that have the analytical, statistical, and substantive expertise to respond to the demands of the RFP and produce exceptional consultation and project services. Project teams are formed to include staff members whose unique experience is most needed by a particular project.

Our staff comprise a multi-disciplinary team with professional backgrounds in psychology, social work, public health, juvenile justice, education, public administration, family studies, and management information systems. Our staff's backgrounds include *direct* program development and administrative experience as well as *consultation* in research. This experience enables us to understand the *practical and practice* issues involved in human services. Also, our work is not dependent on one person but rather involves an entire team to provide the service or product. This provides clients with additional assurance that our work will be completed in a timely and efficient manner.

We have a staff of 21 full-time and 2 part-time employees that work efficiently and effectively in designing and carrying out research, planning, and consultation projects. Because we use a team approach in our work, the burden does not fall exclusively on one evaluator to complete work, and thus we can be efficient and timely in our work. Our team includes:

- 1 President/Evaluator, MSSW
- 1 Executive Director/Evaluator, PhD
- 5 Evaluation Associates, Master's Degrees and PhDs
- 3 Evaluation Specialists, BA
- 1 Computer Systems Manager, BS
- 1 Business/Operations Manager
- 3 Data Entry Specialists
- 7 Quality Assurance & Training Team Members, 3 Master's Degrees

LeCroy & Milligan Associates maintains a well-established office in Tucson, Arizona. The offices are connected with a local area computer network with state-of-the-art word processing equipment, and use Microsoft products (Excel and Access) and other statistical packages, SPSS, Statistica, SAS, Epi-Info, ArcView GIS mapping software, and Dreamweaver software. We also have access to large mainframe computers when needed. Our computer and personnel capacity and experience allows us to process and enter large data sets if needed. Our office has a conference room available for meeting and training when needed. We have a large library of evaluation, prevention and training materials. We have two fax machines to receive documentation and we are available by phone, fax, or email.

Our staff have access to numerous on-line and library resources for reference needs. We have DSL Internet connections with virus and security protection updated regularly. We maintain three websites and regularly post reports, written materials, training materials, and relevant links. We have developed a web platform for training modules used nationally. We use Dreamweaver software for creating secure web-based access for online data collection.

# **Experience and expertise in Statistical Analysis**

With regard to statistical analysis, team members are well versed in advanced statistical analysis of data. For example, we have performed various inferential statistics for different evaluation and research projects including: analysis of variance, ANCOVA, t-tests, multiple-regression analysis, log-linear analysis, survival analysis, discriminant analysis, path analysis, and factor analysis. Several team members have had substantial experience in the statistical analysis of experimental outcome data. These analytic methods have been extensively used in the Abstinence Only Education program evaluation, the Arizona Risk/Needs Assessment Study, the Pima County Juvenile Probation Services evaluation, and the Healthy Families Arizona evaluation. The results of many of these analyses have been published in peer reviewed scientific journals.

LMA staff has gained extensive knowledge of secondary data sources relevant to social services program and policy areas from our past work with the Governor's offices (formerly, the Divisions of Drug Policy and Prevention of Family Violence), from our extensive work with state agencies (Department of Economic Security, Department of Health Services, the Administrative Office of the Courts), the Regional Behavioral Health Authorities, and local community based organizations in every county in the state. In terms of large data sources, we have worked with or are familiar with many sources, including Vital stats, CHILDS (Child Abuse registry data), JOLTS (Juvenile On-Line Tracking System), US Census data, Arizona Youth Survey data, Department of Education school data, Centers for Disease Control (CDC) data, data out of the Institute for Social Research (University of Michigan), and many others.

We have conducted literature reviews on many of the program and policy areas of the Office, including juvenile recidivism and treatment strategies, domestic violence, adolescent substance abuse, workplace prevention programs, juvenile and family drug courts, parent education, organizational assessment and organizational capacity building, adolescent pregnancy prevention, child abuse prevention, family support programs, and child welfare reform. These extensive reviews have put us in touch with current knowledge about policy issues, treatment and prevention strategies, evaluation trends, best practices, measurement and analytic issues, and data sources.

Our in-house MIS professional and several evaluators have gained valuable experience in mining large databases through our Department of Economic Security and juvenile justice projects. We also are well experienced in creating our own large databases that we must use for matching data with large state databases. For example, the Healthy Families evaluation includes over 20 different databases to manage the participant information, and we use SPSS, EPI Info, Excel and ACCESS, which we then use to match with CHILDS data to calculate child abuse rates. In the Proposal for Statewide Research and Survey Services September 2005 3

LeCroy & Milligan Associates, Inc.

Abstinence Only program evaluation, we managed over 100,000 surveys utilizing EPI Info and SPSS—two different database and statistical analysis tools. We used data from our databases to run matches against the Arizona Vital Statistics databases to determine pregnancy rates. We have strong expertise in database manipulation, as we frequently extract data or combine databases for different analytic needs. We have experience with several large data systems including Arizona Vital Statistics, CHILDS (child abuse data) and JOLTS (Juvenile On-Line Tracking System), and US Census data. We understand the structure and limitations of these databases, which enables us to anticipate difficulties in data manipulation and build in safeguards. (E.g. matching on several variables to ensure accuracy) LeCroy & Milligan Associates staff also frequently prepares specialized reports for customers about different aspects of the data such as specific variables, types of missing data, frequencies, or client characteristics. Having a MIS administrator who is familiar with evaluation enhances this approach.

LeCroy & Milligan Associates are affiliated with the American Evaluation Association and the Arizona Evaluation Network. We follow the guidelines for project evaluation and statistical analysis set forth by the American Evaluation Association. Our staff has membership in a variety of professional organizations, including the American Evaluation Association, the Arizona Evaluation Network, the American Psychological Association, and the National Association of Social Workers. Dr. Craig LeCroy and Dr. Allison Titcomb, have previously been presidents of the Arizona Evaluation Network and officials of the American Evaluation Association.

Examples of our work and expertise in statistical research and analysis are outlined below.

Empirical Validation of the Arizona Risk/Needs Instrument and Assessment Process, *Arizona Supreme Court, Administrative Office of the Courts* In 1997, the Arizona Supreme Court, Juvenile Justice Service Division put forth a request for proposals to validate the Arizona Risk/Needs Assessment Instrument, and to assess its reliability and utility. The overall goal of the validation study is to assess the current performance of the Arizona Risk/Needs Assessment Instrument, and to recommend steps to improve its performance. LeCroy & Milligan Associates used multi-variate statistical techniques (logistic regression) to empirically establish factors that could be used to classify offenders into low, medium, and high-risk groups on re-offense rates. The analysis included drawing validation samples from the JOLTS automated database, recoding the salient variables for analysis, and conducting the regression analysis. **Key Staff**: Craig LeCroy, Judy Krysik

<u>Evaluation of Risk Prediction Instruments</u>.(1997) LeCroy & Milligan Associates worked for several years with the Arizona Department of Corrections on the evaluation of risk prediction instruments and on the development of an Arizona risk prediction scale and needs assessment scale. The primary analysis used to develop and validate the scales was discriminant function analysis. **Key Staff:** Craig LeCroy

<u>Pima County Juvenile Probation Evaluation</u>- (2003-2004) -. In assessing recidivism among Pima County youth we mined the JOLTS (Juvenile On-Line Tracking System) database on selected variables and conducted case file reviews on hundreds of juvenile probation clients. **Key Staff**: Craig LeCroy, John Hepburn, Ph.D. (subcontract, ASU Justice Studies)

Proposal for Statewide Research and Survey Services LeCroy & Milligan Associates, Inc. Juvenile and Family Drug Courts and Diversion program evaluations (Governor's Office of Substance Abuse Policy). (2001-2004) A unique aspect of this evaluation was the development of an Access database for on-site data collection of participant outcome information. Instruments developed included parent and youth surveys, interview protocols for site visits with court staff, and focus group protocols. We completed a longitudinal data analysis of changes in youth who participated in the drug court programs, using repeated ANOVAs and time series data analysis. **Key Staff**: Pat Canterbury, Cindy Jones

The Arizona Abstinence Only Education Program Evaluation (1998-present). The scope of this process and outcome evaluation, and the type of data collected has allowed us to employ a series of sophisticated analytic techniques. The statistical analysis of the outcome data has occurred in multiple phases. First, an analysis of the conceptual program model was conducted with the baseline outcome survey data to determine if the program model actually predicts the outcomes of intention to abstain from sex, and sexual behavior. Hierarchical multiple regression analyses were used to examine both the direct and indirect effects of the program model variables. Also, in order to provide the best possible estimates of the effects of the predictors on the outcome variables, estimates of the reliability of the measures were computed and then scale scores were adjusted to account for the amount of unreliability in the scale (correction for attenuation). Also, in preparation for outcome analysis, key outcome measures were analyzed using item response techniques to examine how participants tend to respond to items on a scale. Based on this analysis, the separate items that measure sexual behavior were re-coded into a continuous variable or scale. We have managed over 100,000 surveys utilizing EPI Info and SPSS—two different database and statistical analysis tools. We mined Vital Records data for three cohort years to determine pregnancy rates for the treatment group as compared to a matched sample from the general population. We have also cleaned the data and produced data CDs for decision makers and program staff to mine data regarding risk and protective factors among Arizona vouth.

**Key Staff**: Judy Krysik, Kerry Milligan, Pat Canterbury, Jen McGuire (subcontract) and Craig LeCroy

<u>Healthy Families Arizona, (1991-present)</u> -- we have used SPSS, EPI Info, and Microsoft Excel to manage a cohort of over 7000 participants. For the past 10 years we have extracted data from the CHILDS database to examine child abuse rates among program participants. For the annual reports we perform the following statistical analyses: t-test, correlations, regressions, ANOVAS, discriminant analysis, and factor analysis. **Key Staff:** Cindy Jones, Craig LeCroy, Kerry Milligan

Family Group Decision Making Program Evaluation (2001-2003), Family Builders Data analysis project ~(2000-2004), and Promoting Safe and Stable Families program evaluation (1998-present) (all projects with the Arizona Department of Economic Security)— in each of these projects, we mined the CHILDS database to examine child dependency and child abuse rates. For the annual reports we perform the following statistical analyses: t-test, correlations, regressions, ANOVAs, discriminant analysis, and factor analysis. **Key Staff**: Pat Canterbury, Allison Titcomb, Cindy Jones

#### References

# 1) Client Organization/Contact person

Pima County Juvenile Probation Department

Karen Godzyk

Phone: (520) 740-2067

**Project Description: Pima** *County Juvenile Probation Evaluation*. A multi-method study which included data validation through comparing case records with database information, three large-scale telephone surveys with victims, family members and the general public regarding perceptions of the department's effectiveness, a comprehensive literature review of juvenile treatment approaches, a single system design study with probation officers, and a recidivism study requiring mining of the JOLTS (Juvenile On-Line Tracking System) and sophisticated data analysis.

**Project Dates: 6/02-6/03** 

#### 2) Client Organization/Contact person

Arizona Department of Economic Security Rachel Whyte, Program Manager Healthy Families

(602) 542-1563

Anna Marie Leff, Program Manager for Promoting Safe and Stable Families

# **Project Descriptions**

Healthy Families Arizona Evaluation and Quality Assurance and Training Services: This 13 year project has included numerous data validation and audit methods, and the development of a comprehensive quality assurance system that serves as a model for other programs nationally.

Family Builders program evaluation. This evaluation required data manipulation and statistical analysis in ACCESS and SPSS to validate data and produce an annual report of program results each year.

Promoting Safe and Stable Families Program Evaluation.

**Project Dates:** 1991 to present

#### 3) Client Organization/Contact person

Arizona Department of Health Services Sara Rumann.

rumanns@azdhs.gov

(602) 364-1400

**Project Description: Arizona's** *Abstinence Only Education Program Evaluation*: A program evaluation of abstinence only education involving 18 sites, 172 schools, 600 locations, surveys of 100,000 participants on sexual risk and protective factors, four annual telephone media surveys, and provider and stakeholder surveys. Numerous data collection and quality assurance methods were employed to insure data quality. A wide variety of statistical analyses were performed.

**Project Dates:** 1998-2003, 2004-present

# 4) Client Organization/Contact person

Arizona Governor's Division for Substance Abuse Policy Rudy Navarro (602) 542-6004

**Project Description/Project Dates:** LMA has been involved with numerous projects for the Governor's Division for Substance Abuse Policy. The projects listed below included workshops and technical assistance in needs assessments and sustainability.

- Youth Educating Parents Technical Assistance: A project involving two grantees in two counties. The agencies were tasked to design and deliver unique prevention programs that involve youth educating parents about substance abuse. (2002-present)
- Parenting for Youth Drug Prevention Programs Technical Assistance: Similar in nature to the previous effort, this project involved six grantees in five counties. (2002-present)
- An Evaluability Assessment and Evaluation Project for Substance Abuse Prevention Programs for Children: This project included an assessment of the funded agencies capacity to participate in an evaluation, and the subsequent evaluation of those programs. Recommendations for future grant development and procurement were made. (work sample included in this proposal) (2000-2002)

# **Resumes of key personnel**

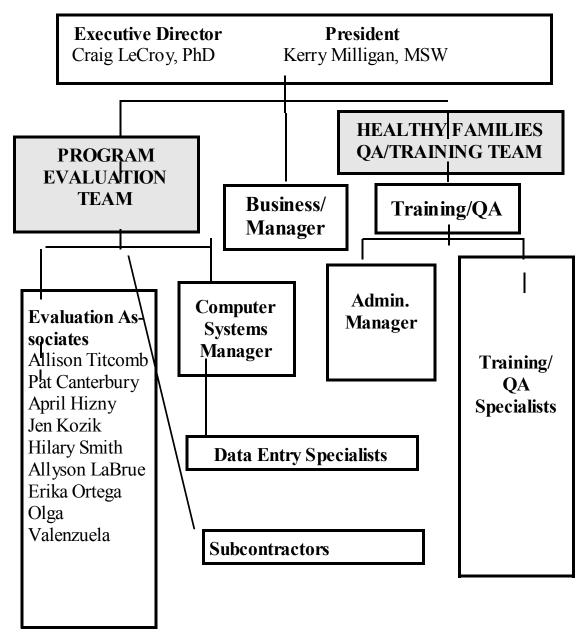
Resumes of the following key LeCroy & Milligan Associates staff are attached.

Kerry Milligan, MSSW Craig LeCroy, Ph.D. Allison Titcomb, Ph.D. Pat Canterbury, MPH April Hizny. BA Jen Kozik, MPH Hilary Smith, MA Cindy Jones BA, MIS

#### Potential Subcontractors:

- John Hepburn, Ph.D., Professor, ASU Justice Studies
- Judy Krysik, Ph.D., Associate Professor, ASU School of Social Work, College of Public Programs
- Jenifer McGuire, Ph.D., University of Arizona (post doc). Previous employee of LeCroy & Milligan Associates

# LeCroy & Milligan Associates, Inc. ORGANIZATIONAL CHART



Note: The Project team leader is chosen from evaluators for each project, and supervises the project

# Method of Approach

Statistical analyses are most often completed within the context of a larger evaluation or research project, although LeCroy & Milligan Associates has been contracted to simply complete statistical analysis on a stand-alone basis as well. The steps below reflect the more comprehensive approach we apply to prepare for and conduct statistical analyses.

# Develop data collection methods, tools and approach methodology

For each project, we select a team of at least two evaluation staff to coordinate the evaluation project, design a data collection and data analysis plan. The project manager/team leader will then tap other staff as needed for selected tasks, for example, our Evaluation Assistant clean data and run frequencies, while a senior evaluator may be tapped to complete some complex data analysis. Our Computer Systems Manager, skilled in data base development, may be tapped to create databases, manipulate data sets and so on.

Once the research plan has been developed from the original project proposal, LeCroy & Milligan staff create a work plan that includes a detailed Master Schedule of Activities for the implementation of the research plan. A project manager is assigned to the evaluation and is responsible for adhering to this plan, which includes the data collection and data quality assurance activities, data analysis, and report writing.

# Data collection plans

Our evaluation team creates a data collection plan that outlines all of the major data collection activities according to the process and/or outcome evaluation. These plans typically include what the method or activity for collecting the data is, the variables to be measured or the information that the method is designed to collect, and the source for the data. Whenever possible, existing data sources are used so that duplication of efforts is avoided. A sample Data Collection Plan from the Juvenile and Family Drug Courts and Diversion program evaluation (Governor's Office, 2000-2004) is attached as a work sample.

#### Data collection quality assurance plans

LeCroy & Milligan prides itself on its quality assurance for data collection. Obviously, if there is poor quality or missing data the evaluation is jeopardized. It is essential that the data gathered in a program evaluation are valid, meaningful, and they measure what they are intended to measure. LeCroy & Milligan Associates develops quality assurance plans for each evaluation project. In addition, we have experience in developing and implementing a statewide quality assurance and training plan with the Healthy Families program that is a model being replicated nationally.

We employ various strategies for assuring data quality. These are: For data collection process:

□ Proper training and technical assistance for data collection staff, whether it be our internal staff, or program provider staff. We conduct orientation and training for data collection, and then provide ongoing monitoring and technical assistance to sustain the effort. For

example, in the Juvenile/Family Drug Court and Diversion program evaluation for the Governor's Office, program staff are responsible inputting data into an ACCESS database we provided to each site. On this project, we have provided data collection trainings, meetings, and ongoing technical assistance to program staff by assigning evaluation specialists to specific program provider sites. We will often observe data collection at the site to assure proper administration of instruments and attention to issues such as confidentiality.

Develop training materials, such as user-friendly data collection manuals and other
supporting documents.

ongoing support and communication with data collection staff using a pro-active approach to avoid misunderstandings or problems.

#### Internal processes:

- ☐ LeCroy & Milligan has a well-trained staff of data entry specialists who have experience with a diverse array of project data and databases.
- ☐ We have a standard set of practices to check the data quality, such as random spot checks in the database for data inaccuracies, and periodic checks of the frequency outputs for missing data and outliers.
- ☐ We have established comprehensive data security measures, including password protected computer access, locked storage cabinets, staff confidentiality agreements, and often, separation of personal identifying information from survey documents.

LeCroy & Milligan Associates has engaged in a variety of program evaluations that require extensive data collection and statistical analysis of data. For example, in the Healthy Families program LeCroy & Milligan Associates designed the data collection forms, trained the program staff in data collection, and facilitated data collection across 48 different statewide sites. In this project, the Healthy Families Arizona staff was trained to administer the individual level measures such as the Ages and Stage Questionnaire and the Parenting Stress Index. The evaluation staff was responsible for monitoring the collection of data across the sites and conducting quality assurance procedures with regard to the data. For control group participants the evaluation staff designed the procedures for data collection (including an incentive system), trained our own staff to collect the data, and developed a tracking system to maintain good data collection efforts over time.

LeCroy & Milligan Associates also has extensive experience working with state agencies and personnel in designing and managing data collection efforts. We have experience with several state data systems; for example, we used data from the Child Abuse Registry and CHILDS for the Healthy Families, Family Builders, and Promoting Safe and Stable Families evaluations. We used data from the JOLTS system for an empirical evaluation of juveniles for the Supreme Court, in the Juvenile/Family Drug Court program, and in the Pima County Probation Services evaluation. Other experience includes designing data collection for large scale administration in high schools, middle schools, and detention centers (e.g., Abstinence Only Education Program); designing data collection and training parole officers to collect data from Juvenile Department of Corrections records, (e.g. Evaluation of Risk Prediction Instruments); and designing follow-up data collection procedures to evaluate the longer term impact of abstinence-only sex education program.

# Review, analyze and evaluate data applying appropriate statistical techniques

During the early stages of project planning, and periodically during the course of a project, the project manager facilitates a team meeting with the entire evaluation staff, to gain input and expertise on appropriate data analysis methods. Different evaluators have different areas of expertise, which inform the methods chosen; in addition, we may utilize a methodological expert from the academic community for consultation on projects if needed.

Part of the research plan includes a data analysis plan that details the steps and methods for analyzing the data. The selection of these methods depends on the following:

The needs of the client (primary research questions and type of information needed)
The type of the data collected (e.g. qualitative vs. quantitative, process or outcome),
The level of measurement
The sample size
Project timeline.

Qualitative Data Analysis. If the data collected is primarily qualitative, then content analysis may be used to organize the data around the major questions or themes in the narrative, or text under analysis.

We have several staff with experience in qualitative data analysis. The needs of the client drive the type of information that is provided through the qualitative analysis: raw data, description, and interpretation, recommendations based on the data or a combination of all these things. The analysis strategies can be transcript-based, tape-based, note-based, or memory-based.

Quantitative Data Analysis. The quantitative data analysis is driven by the research and hypotheses from the research plan. We have a professional staff that is trained in a variety of descriptive and multi-variate inferential statistical techniques. While our staff has the ability to perform sophisticated analyses we only use the level that is most appropriate for the project. For example, it may be that more sophisticated methods could be used, but a more sophisticated level may not be needed or required by the client. Other considerations, mentioned earlier, are the type of data available for analysis. Sometimes, the data may be nominal or discrete, and do not lend themselves to sophisticated techniques. If the data is process data, then usually descriptive techniques such as frequency distributions, percentages, and central tendency statistics are used, for example, to describe the program population characteristics, report participation rates, and enumerate other program outputs.

For outcome data analysis, inferential techniques are used, and at a minimum the following steps are typically conducted by LeCroy & Milligan Associates:

- 1) Clean the data (check for missing data and accuracies)
- 2) Determine the data distributions of the major variables for the analysis (i.e. frequency distributions, histograms, central tendencies, skewness, etc.)

- 3) Based on the results from previous steps, adjust the analytic plan so the analysis is appropriate to the data.
- 4) Create syntax for re-coding of variables if needed, for example to aggregate data, or re-code variables to address uneven distributions, etc.
- 5) Conduct major analyses based on type of data, for example, correlational or inferential statistics.

Following the analysis of data LeCroy & Milligan Associates would present their findings to the appropriate stakeholders. The objective would be to solicit their perception of the degree of validity of the results. We would insure that any questions about the accuracy of the findings were researched and corrected if needed. After stakeholders agreed to the accuracy of the findings we would prepare a written document that met the needs of the client. These findings often become the foundation for generating recommendations for program improvement or future activities.

# **Prepare and submit reports**

Presenting analytical information in the form of reports or presentation is crucial to understanding and using research information. LeCroy & Milligan's general approach to report writing is to understand and respond to the information needs of the audience for the report. This will determine the scope and format of the report. We have written reports that vary in their technical nature, and sometimes, we produce several reports for one project that address different audiences. For example, we may write a comprehensive process and outcome report that is considered the main report, and then we may produce a short report or executive report for policy-makers and the public. In other cases, we have written both a technical report that specifically details the analytic results, and a report for lay audiences that only summarizes and interprets the findings. In several of our multi-site evaluations we have produced individual program site reports for the program providers. We have a talented Office Manager who provides word processing and graphics production as needed.

Our research reports typically include all of the following components:

A description of the methodology used in the evaluation
A description of the limitations and challenges of the study and research design
How we constructed the sample and demographic characteristics of the sample
The major questions or hypotheses for the evaluation
The statistical analysis approach and results, including confidence intervals
The major findings
Recommendations for the program or project.

If appropriate for the audience, we may also describe in detail the statistical analyses used. If a test of mean differences was employed, the means, standard deviations, confidence intervals and effect sizes are usually reported, as is recommended by the American Psychological Association task force on statistical analysis.

An example of the range of documentation we prepare for a project is illustrated in the Arizona Abstinence Only program evaluation. Over the course of the project we developed and delivered in print and/or electronic versions:

- Annual Reports,
- Executive Summary (targeted toward state agency decision-makers),
- Highlights fact sheets, a comprehensive Technical Report (suitable for a research audience),
- a separate Media Campaign report, individual site data reports which included frequencies, charts and tables of survey items by site,
- a PowerPoint presentation on outcome findings,
- a data CD entitled "Mining the Data—comprehensive risk and protective data of Arizona teens" which included an overview of the project, a section on "how to use this data" and survey data organized by population (youth, adult, parent survey data),
- the full database with all variables,
- a modified data base with individual identifier removed for confidentiality,

Reports, data and other documents are prepared by the lead evaluator and go through an extensive review process by other evaluators, and the company principals. The Office Manager, skilled in word processing, and publications software, works closely with the evaluator to prepare clear, attractive and usable documents for dissemination. We consistently deliver both hard copy and electronic versions of reports and publications. Often we have prepared PowerPoint presentations for use by the client. Many of our reports and training materials are available on-line through our websites.

#### **Background Information/Work Samples**

Examples of reports and projects can be found on our website, <u>www.lecroymilligan.com</u>., for example:

- Arizona's Abstinence Only Education Program Evaluation Final Report and executive summary
- Healthy Families Arizona annual reports
- Pima County Juvenile Probation Services program evaluation Executive summary and reports
- Family Group Decision-making Program Evaluation reports
- Juvenile and Family Drug Courts and Diversion program evaluation reports